



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,023	10/03/2003	Edmund J. Balboni	Analog.7150	1507
7590 06/17/2005			EXAMINER	
Matthew E. Connors Gauthier & Connors LLP Suite 3300 225 Franklin Street Boston, MA 02110			CHANG, JOSEPH	
			ART UNIT	PAPER NUMBER
			2817	
DATE MAILED: 06/17/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

EC

Office Action Summary	Application No. 10/679,023	Applicant(s) BALBONI ET AL.	
	Examiner Joseph Chang	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 15-26 and 29-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 12-14, 27 and 28 is/are rejected.
- 7) ☒ Claim(s) 4 and 9-11 is/are objected to.
- 8) ☒ Claim(s) 1-39 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/11/05, 12/22/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Claims 1-14, 27 and 28 drawn to Species 1 filed on 5/26/05 is acknowledged. The traversal is on the ground(s) that the Examiner merely makes a statement that the alleged grouping of claims set forth patentably distinct species without any corresponding reasoning or arguments. This is not found persuasive because Examiner has made the proper groupings of species in accordance with the requirement of MPEP 809.02(a). As stated in the previous Office Action, the groupings of species are as follows:

Species 1: an embodiment having programmable charge pump to adjust its output current level based on a measured gain of the oscillator, readable on claims 1-14, 27-28.

Species 2: an embodiment having programmable charge pump matched to a resistive value of the PLL loop filter, readable on claims 15-26.

Species 3: an embodiment having programmable charge pump calibrate based on RC value, readable on claims 29-39.

The proper groupings of claims set forth patentably distinct species with their corresponding reasoning, thus met the requirement of MPEP 809.02(a).

Claims 15-26 and 29-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement on 5/26/05. The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

Claim 9 is objected to because of the following informalities: the recitation "to receive either a signal from a calibration signal;" has no alternative element. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 7, 27 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Griffith et al., US Pub. No. 20020039050 A1 (cited by the applicant).

Regarding Claim 1, Griffith et al. discloses a phase-locked loop bandwidth calibration circuit (Figure 2-4), comprising: a programmable charge pump (50); a phase-locked loop filter (48) operatively connected to said programmable charge pump (50); an oscillator (44) operatively connected to said phase-locked loop filter (48), to generate a frequency signal based upon a signal (62) received from said phase-locked loop filter (48); and a control loop (60) operatively connected to said phase-locked loop filter (48) and said programmable charge pump (50); said control loop (60) controlling said programmable charge pump (50) to adjust its output current level based on a measured gain of said oscillator (Para.[0024]).

Regarding Claim 2, Griffith et al. discloses that the control loop (60) includes a voltage measurement circuit (inherently exists in the gain control processor 58, Para [0024]), operatively connected to said phase-locked loop filter (48), to measure a voltage (62 via 56) being output from said phase-locked loop filter (48); an analog to digital converter (64), operatively connected to said voltage measurement circuit, to convert the measured voltage into a digital signal; and a controller (inherently exists in the gain control processor 58, Para[0024]) to cause said programmable charge pump to adjust its output current level based upon a received digital signal from said analog to digital converter (Para[0024]).

Regarding Claim 3, Griffith et al. discloses that the control loop (60) controls said programmable charge pump to adjust its output current level so that the product of the measured gain and a charge pump current level is kept constant (see Para. [0024], the functional recitation inherently exists in the structure because it is capable of performing the functional recitation).

Regarding Claim 5, Figure 2 shows an integer-N divider (46) and a phase and frequency detector (52).

Regarding Claims 27 and 28, the method recitation inherently exist in the structure as discussed above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2817

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffith et al. in view of Eriksson, US Patent No. 5,986,512.

As noted above, Griffith et al. disclosed a phase-locked loop bandwidth calibration circuit (Figure 2-4) including a phase and frequency detector and an integer-N divider except a sigma-delta-modulator connected to the divider. As would have been well known in the art, such configuration as shown in Eriksson provides stable oscillation frequency and reduction in noise. And therefore, it would have been obvious to one of ordinary skill in the art to include a sigma-delta-modulator in the circuit of Griffith et al. because such a modification would have provided the benefit as stated above. It is also noted that the functional limitations in Claim 8 inherently exist in the structure.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Griffith et al. in view of Kirkpatrick, US Patent No. 6,476,681.

As noted above, Griffith et al. disclosed a phase-locked loop bandwidth calibration circuit (Figure 2-4) including a phase locked loop filter. However, the filter has not been explicitly disclosed with a switch to the capacitor to effect a PLL bandwidth. As would have been well known in the art, such configuration as shown in Kirkpatrick provides adjustable PLL bandwidth to allow for the input signal over both broad bandwidth and a narrow bandwidth. And therefore, it would have been obvious to one of ordinary skill in the art to include a switch in the circuit of Griffith et al. because such a modification would have provided the benefit as stated above.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffith et al. in view of Lo et al., US Pub. No. 20020075091

As noted above, Griffith et al. disclosed a phase-locked loop bandwidth calibration circuit (Figure 2-4) including a phase locked loop filter. However, the filter has not been explicitly disclosed with a path having an integrator path and a lead-lag path. As would have been well known in the art, such configuration as shown in Lo et al. provides a dual path to allow the total capacitance required in the loop filter to be reduced while still retaining an adequate signal to noise ratio in the filter. And therefore, it would have been obvious to one of ordinary skill in the art to include a dual path in the circuit of Griffith et al. because such a modification would have provided the benefit as stated above. It is noted that the limitation in Claim 14 is obvious consequence of construction using a dual path in the loop filter.

Allowable Subject Matter

Claims 4 and 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the best prior art of record, Griffith et al., taken alone or in combination of other references, does not teach or fairly suggest a programmable gain amplifier, a comparator and a gain controller as set forth in the claims (9-11) or a voltage reference circuit as set forth in the claim 4.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

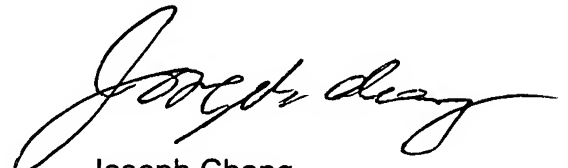
Ingino, JR. discloses a PLL with a voltage regulator for a charge pump.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2817

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Joseph Chang", written in a cursive style.

Joseph Chang
Patent Examiner
Art Unit 2817